UCLA CEE 141: Structural Steel Design

Fall 2018

Class Project Assignment

Architects

Westwood Blvd.
Los Angeles, CA 90024

MEMO

Date: October 24, 2018

To: CE 141 Student Engineering Firms

From: Susie Bruin, AIA, Principal Architect

Re: West Coast Office Headquarters for Yoogle
Increment 2: Roof Beam Design Submittal Requirements

Please fulfill the following requirements for Increment 2 of the project, due Monday, November 5, 2018 at the beginning of class. Please submit only electronic copies for this Increment. Email me and copy all group members. Please include your group number in the email subject. Email must be received prior to 8:00 am on the due date.

- Determine the most efficient framing layout for the roof plan provided (e.g. whether beams span the "long way" or "short way" in each bay of framing).
    - Show by calculation that the layout you chose results in a lower weight than the other alternative for a typical interior bay of framing.
- Design all roof beams and girders.
    - Use the roof dead and live loads that you determined in Increment 1.

    - Consider exterior wall dead loads on the edge beams/girders where they occur.
    - Observe the deflection limitations as described in the Project Overview memo.
    - You may consider roof beams to be laterally supported by the roof deck.
    - Consider girders to be laterally braced only by the beam connections.
    - The N-24 roof deck selected can span a maximum distance of 12′-0″ between supporting beams.
- Submit a draft of the Roof Level Framing Plan (S2.2) for review.
    - Draw all beams and girders on the plan.
    - Indicate the size of each beam and girder on the plan.
    - Indicate the direction of the deck span.
    - It is acceptable to submit the plan as an 8 ½″ x 11″ print for this Increment, as long as it is readable.
    - As with all submittals for this project, the drawings should be completed in Bluebeam.
- Submit your design calculations for review.
    - Include a sketch of the framing plan in the calcs to indicate how beams are grouped for design of similar members.
    - Use the designations B1, B2… for beams and G1, G2… for girders and use these designations to identify the individual beam/girder calculations.

Remember to keep the original copy of your work and hand in a copy for review.